

Serial No. 483,327

-3-

In claim 1, line 7, the use of "receive" is indefinite. The claim does not clearly state what is being received.

In claim 4, lines 4-5, the use of "frame store" seems to be incorrect. The claim implies that image copies are retrieved from the frame store and then stored back in the same frame store at a different location.

In claim 4, line 6, and in claim 5, lines 5-7, the use of the terms "image copy" and "image" is indefinite when referred back to the problems as stated for claim 1. The distinction among "frames", "images" and "image copies" has not been clearly defined.

The applicant is also asked to make sure that all of the terms used in the claims have antecedent basis, where needed, when correcting the problems as stated above.

2. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Serial No. 483,327

-4-

3. Claims 1 and 3-14 are rejected under 35 U.S.C. 103 as being unpatentable over the publication by Hugh, Boyd, Quantel.

The apparent novelty of the claimed invention as disclosed seem to be as follows:

1) each stored "frame" of video data contains both a full and a quarter resolution copy of the image;

2) size reduction and production of the "frame" of video data is performed by the interaction between the size reducer and the frame store prior to storage in the image storage;

3) and the "frame" of video, containing both resolution copies, is non-selectively produced for all images that are stored.

The above claims do not clearly describe the apparent novelties of the claimed invention. Thus the claims are broad enough to read upon the "Quantel DLS6000" as described by Hugh Boyd. This system stores a plurality of still frames on disk memory (image memory). These "full resolution" frames can be copied out of memory, reduced in size, and placed in any desired position of a "frame store." (Pg. 47; column 1; lines 11-19). These reduced resolution images can then be stored back on disk memory (Pg. 47, column 3; lines 18-25). Thus the disc store can contain a plurality of frames with full and reduced resolution copies. The "frame store" can also hold either copy and can position the reduced copies in the store as desired for output.

4. Any inquiry concerning the merits of this office action or earlier communications from the exa-

AX061590

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Serial No. 483,327

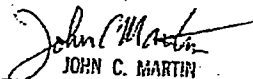
-5-

miner should be directed to David E. Harvey whose telephone number is (703) 557-6844. Any inquiry of a general nature of relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 557-3321.

DE Harvey:klw DH

12-17-84

(703) 557-6844


JOHN C. MARTIN
SUPERVISORY PATENT EXAMINER
GROUP 260

TO SEPARATE, HOLD TOP AND BOTTOM EDGES, SNAP APART AND DISCARD CARBON

FORM PTO-892 (REV. 3-78) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

NOTICE OF REFERENCES CITED

SERIAL NO. 06/483327 GROUP ART UNIT 262 ATTACHMENT TO PAPER NUMBER 3

APPLICANT(S) Beaulier

U.S. PATENT DOCUMENTS												
	DOCUMENT NO.						DATE	NAME	CLASS	SUB-CLASS	FILING DATE IF APPROPRIATE	
A	4	1	5	2	7	2	2	5/1/79	Inuiya et al.	358	102	
B	4	3	0	2	7	7	6	11/24/81	Taylor et al.	358	160	
C												
D												
E												
F												
G												
H												
I												
J												
K												

FOREIGN PATENT DOCUMENTS													
	DOCUMENT NO.						DATE	COUNTRY	NAME	CLASS	SUB-CLASS	PERTINENT SHTS. PP. DWG. SPEC.	
L													
M													
N													
O													
P													
Q													

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)

R	Hugh Boyd, "The DL56000 - A New Digital Still Store Library System"	
S	International Broadcast Engineer, Vol. 11, No 170, pp. 46-48	3/80 (360/350)
T		
U		

EXAMINER David E Harvey DATE 12/4/84

* A copy of this reference is not being furnished with this office action. (See Manual of Patent Examining Procedure, section 707.05 (a).)



by Hugh Boyd,
Quantel.

The Quantel DLS 6000 Digital Library System was first introduced to broadcasters at private demonstrations held during last year's NAB and Montreux exhibitions. At that time, the product was still under development, and Quantel were seeking comments from their invited guests as to the final configuration of the DLS 6000. The preferred advice was considered sufficiently valuable by Quantel engineers for some of it to be included in the ultimate system design, which will be demonstrated publicly for the first time at NAB 1980.

The DLS 6000 represents a new generation of still stores for television broadcasting. The system provides not only significant improvements in basic performance over existing techniques, it also offers several unique facilities that make the unit a complete production tool. At only 10.5 inches high for the DLS 6000, and 7 inches high for the storage disc unit, the system is ideally suited for OB van use as well as in the studio.

The Digital Library System is a naturally evolutionary product to come from the Quantel stable. It is revolutionary in concept and is based on a solidly engineered, flexible piece of hardware utilising three framestores and a DEC LSI-11 minicomputer. Typically, the DLS 6000 embodies

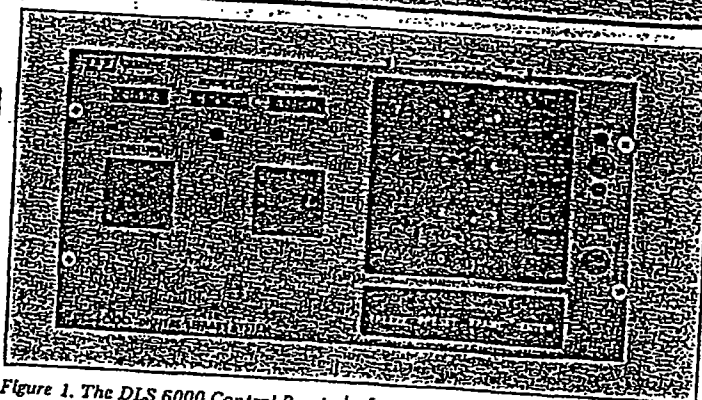


Figure 1. The DLS 6000 Control Panel

Quantel's basic principle of expandability by retrofitting new options as they become available. The word "obsolete" does not exist in the Quantel vocabulary!

Infinite Storage Capacity

The disc unit has a picture capacity of up to 340 stills. With multiple disc operation, say ten discs, 3400 pictures would be randomly accessible. However, the number of discs allowed is wisely unlimited, but is anticipated that broadcasters requiring very large library storage will avail themselves of a video tape back-up store — a unique

feature of the DLS 6000. Because the data is transferred in digital form, there is no loss of quality. Picture information can be transferred automatically from disc to a standard video cassette or reel-to-reel machine without it being modified, whether it is in use in a studio or OB van.

Transfers from tape to disc work in exactly the same way, therefore a cassette is all that is required to move information between locations. Similarly, a full archival store library can be formed from cassette or tape with more than 3000 pictures being stored on one tape. Again, being digital in format, no generation losses are seen no matter how many times the information is recorded or re-recorded.

46-8-1

W500-358-128 X R-360-358 Vol. 11, no. 170 (Mar. 1980)

INTERNATIONAL BROADCAST ENGINEER (GB)

STILL STORES

Production Effects Capability

The provision of a number of production effects seems to be a logical facility for a Quantel framestore-based product. The DLS 6000 has this integral feature for very practical reasons.

Picture repositioning is achieved by the simple movement of a joystick on the compact 8" x 4" control panel (Figure 1).

Picture compression is also achieved by moving a joystick. The stored image may be reduced to any size between normal (full frame) and virtually zero size. This feature, when used with repositioning, defines the exact size and position of a still without employing any other digital effects system.

Picture enlargement. Joystick movement enlarges the image up to two times to allow selection of a chosen portion of a still.

Variable aspect ratio. The aspect ratio of the image can be varied from the normal 4 x 3 to any rectangular shape.

Multiple picture handling. The DLS 6000 is capable of reproducing as many pictures as are wanted at the same time. This facility is clearly an adjunct to compression and repositioning. It is used either to show, at the same time, a number of participants in a discussion or event, or even to build up a complete montage of images. The pictures can be called down from the disc one at a time to show the viewer the build up, or can be called simultaneously so that only the finished composite is broadcast. Borders. The DLS 6000 is equipped with its own border generator capable of changes in hue, saturation, luminance and width. Borders can be placed around all pictures being shown. If desired, although different images can have quite different border parameters at the same time. The border generator also includes a background or matte generator, further releasing the mixer for other functions.

Extensive Operating Features

Both the technical director and the system operator were kept very much in mind by Quantel when designing the Digital Library System. Each has a computer display panel, with the director's being associated with the

mixer and almost always used for replay. Whereas, the panel the operator (or "composer") uses, will be essentially employed for recording. The DLS 6000 is capable of single or two person operation, so two control panels may access the machine simultaneously for time sharing.

High change rate. Pictures can be changed at a rate of two per second with complete random access. Thus, no cache memory of the day's programme requirement has to be prepared.

On-air picture change. Although the change rate is limited to two per second, the additional framestore circuitry in the DLS 6000 allows vertical interval switching between pictures. The switch is instantaneous: only the throughput rate is limited to two per second.

On-air transitions. When using the DLS 6000, a mix/effect bus can be eliminated by utilising the digital transitions available in the unit. Changes between one picture and the next can be by means of a simple cut, a programmable dissolve, or even a wipe.

Multiple outputs. Three outputs are available with the DLS 6000 — two programme and one preview. Internally generated transitions are possible with both programme outputs, or they can be used together to utilise more exotic wipes in a mixer. Keys are generated by the system to match the picture at all times.

Preview. The DLS 6000 has its own preview output which can be operated without affecting the on-air programme or transitions. The preview allows the varying sizes or positions of images to be chosen by means of cross wires controlled by joysticks, and also contains the fast viewing or "browse" feature.

Browse. The preview facility has the ability to look through the contents of the disc by displaying 25 images at a time, and slowly moving them down the screen. This rolling list of pictures allows easy viewing to find a desired frame, or alternatively, permits the showing of pre-chosen slides waiting in the "stack" for display during a programme.

On-air editing. As previously mentioned, the on-air display or transition is unaffected by previewing. Similarly, the DLS 6000 permits the capture and recording of incoming material while

the equipment is being used during a broadcast. This is an essential feature to get the full benefit of the system in a news studio situation.

Asynchronous operation. The input of the Digital Library System can handle asynchronous information to allow stills to be captured from incoming ENG material.

Graphics handling. The DLS 6000 is capable of keying stored graphics over displayed images, thereby releasing the mixer from this function. Graphics may have their size and position defined quite independently of picture information, always assuring perfect readability for all sizes of titled images.

Digital re-recording of composite pictures. Composite pictures created on the preview monitor can either be stored as control parameters to ensure recall on demand on the programme outputs, or alternatively, can be re-recorded back onto disc as a complete new picture at an individual location.

Editing system. Complete sequences of commands to the DLS 6000 can be set up and stored for simple single button operation during a programme. The editing system does, however, allow simple addition or deletion of items to ensure ease of operation in a fast moving news broadcast. The mini-computer in the system will permit the addition of standard computer peripherals at a later date to accommodate even more powerful editing equipment.

Control delegation. As previously stated, the control of the DLS 6000 can be time-shared between several stations including during a live broadcast. Separate preparation and replay panels permit the technical director to remain divorced from the recording of stills from incoming ENG material.

Obviously, the basic task of the Digital Library System is to replay the correct picture from the disc store. However, the usefulness of the system is greatly enhanced by the ability to choose the size and position of the replayed picture, and to define it in accordance with the requirements of the rest of a production. The Quantel tradition of high fidelity is maintained in the quality of the images produced by the DLS 6000 at all times, whether the size of the still has been modified or not. At all sizes and shapes, the unit displays excellent image quality, with-

GROUP 123					
SLIDE	PICTURE	SIZE & POSITION	BORDER	TRANSITION	CUE
0	23	NORMAL	ON	DISSOLVE	20
1	18	COMPRESS	OFF	CUT	
2	14	ENLARGE		WIPE	10
3					
4	36	COMPRESS		SUPER	INSTANT
5	100	COMPRESS		SUPER	
6	23	COMPRESS		CUT	
7					
8	11	NORMAL			
9	10			CUT	EXT
NEXT GROUP 128					

Figure 2 An example of a slide control panel.

Figure 2. An example of a typical Edit Display (as would appear on the TV monitor).

MARCH 1980

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STILL STORES

out showing any hint that the video has been processed.

The Control System

The philosophy behind the control system for the Digital Library System is based on the concept of Pictures, Slides and Groups. A Picture is defined as an image on disc and has a number allocated to it at the time of recording. Pictures are normally recorded on disc at full size to give maximum flexibility on replay. A Slide is a Picture on replay that has the parameters of size, position, transition type and time, etc., allocated to it. The number of a Slide need not be the same as the number of the Picture that the Slide depicts. A Group is a collection of up to ten Slides.

It is essential to appreciate that, with this machine, defining a still merely by a number is insufficient due to the extra facilities available. Therefore, both the still and what is to be done with it must be defined before displaying on the programme output. The computer display. The extra degree of freedom made available by the DLS 6000 production features, make it necessary that at both preparation time and programme time, the operator always has a clear picture of exact machine status. In order to give the user this clear indication of the situation, a video display system has been added to the host computer, and it is via this display system that all setting of parameters is achieved.

The computer display output is added to the preview output, and hence, shares the preview screen. There are three types of computer display available to the user: Edit, Ident and Menu. A cursor display is added to all these to allow the size and shape of images to be defined on the preview monitor.

A typical example of the Edit display is shown in Figure 2. It will be seen that the Slide number is independent of the Picture number as has been described earlier.

The Ident display overlays the true Picture number when using the "browse" feature, so that the various chosen Pictures may be easily identified.

The Menu display is a special option that allows selection of modes of use of the machine, and it is this display that is used in conjunction with the tape backing store system.

The recording chain is shown at the top of Figure 3. Input video enters the system and is immediately converted into digital format and passed to a framestore at full video data-rate. This input framestore acts as a freeze frame device and allows the user to select still pictures from the incoming live video. For simplicity, the link from the output of this store to the preview output from the DLS 6000 has not been shown, but in reality, the video follows this path allowing the user to observe the incoming picture at all times, whether live or frozen.

Once the chosen image has been frozen in the framestore it is read out from the store at disc rate via a data processor section to further reduce data rates, and then via the disc formatter to block the information suitable for writing onto the disc.

The disc itself is a latest generation Winchester drive high packing density sealed unit. The heads are of the flying type, but the construction of the disc eliminates the need to have expensive and unreliable head retraction mechanism — the heads actually land on the disc surface when the platter is not in motion. The disc data rate allows a picture to be generated in 0.5 seconds. The total package is highly reliable and rugged and includes parity check circuitry for optimum data integrity.

The replay chain, shown at the bottom of Figure 3, is obviously more complex than record due to the increased number of framestores and programme output facilities. Data from the disc passes through a disc re-formatter where the information

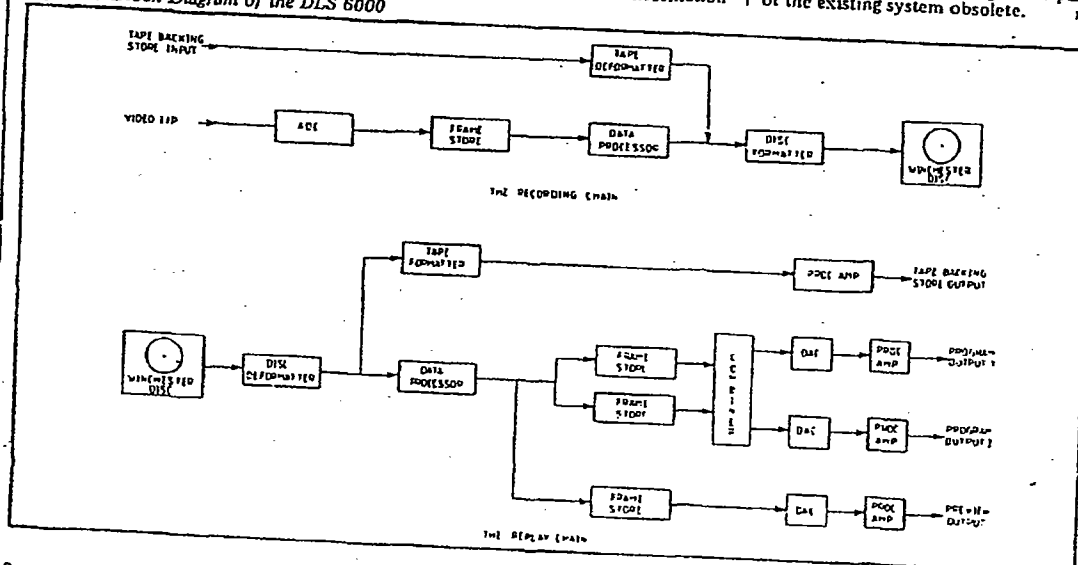
is sorted out from its blocks, and then onto the data processor where it is unpacked. At this point, the information is passed to one of the three framestores available, and it is now that the size change mechanism operates. If the information is routed via the preview store, no other processing is done other than reading it out of the store at full video rate into a DAC and onto the display via a proc amp. If the data is fed to one of the programme stores, it is subsequently passed to a digital combiner assembly that performs the appropriate wipe, cut or dissolve functions. Also, the combiner copes with the addition of borders or the keying of caption information over pictures or coloured matte.

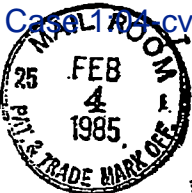
For convenience, one framestore is shared between the video input facility and the preview output. Not shown in Figure 3 is the host DEC LSI-11 minicomputer that controls the whole machine and is responsible for all housekeeping tasks, the operation of the control panel and the editing system.

The tape backing store system is interfaced to the disc before and after the disc formatter and de-formatter. The information on disc has to be prepared and re-blocked by the tape formatter prior to the addition of syncs and burst for feeding to the tape system. It should be remembered that the tape system is perfectly conventional, and can be any recorder available in the studio or OB van.

When receiving information from the tape backing store, information is unpacked and blocked in a tape de-formatter before being passed on to the disc. The DLS 6000 Digital Library System is available in NTSC standard. But, as usual with Quantel, it is reasonable to assume that PAL and SECAM versions are already being developed. When they are introduced, one can expect even more flexible facilities to be unveiled, and naturally, none of them will make any other part of the existing system obsolete.

Figure 3. Block Diagram of the DLS 6000





IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT

RECEIVED

FEB 12 1985
GROUP 260 2-13-85

In re Application of:

DANIEL A. BEAULIER

Serial No. 483,327

Filed: April 8, 1983

Title: ELECTRONIC STILL STORE
WITH HIGH SPEED SORTING
AND METHOD OF OPERATION

Art Unit: 262

Examiner: D. Harvey

Attorney Docket No. AV-3033

I hereby certify that this correspondence is being
deposited with the United States Postal Service as
first class mail in an envelope addressed to:
Commissioner of Patents and Trademarks, Washing-
ton, D.C. 20231, or 2-1-85

Bradley A. Perkins 2-1-85
Bradley A. Perkins, Reg. # 31,406 DATE

Honorable Commissioner
of Patents and Trademarks
Washington, DC 20231

Sir:

AMENDMENT

In response to the first Office Action dated December 21, 1984, please amend the
above-identified application as follows:

IN THE CLAIMS:

Please rewrite Claim 1 as follows:

Subst
Q1
Amend.
1. (Amended) An electronic still store system comprising:
an image store for [retrievable] retrievably storing therein a plurality of frames of
video images with both a full spatial resolution image frame copy and a reduced spatial
resolution image frame copy of each image frame being stored; and
a frame store which is operable in a first mode to receive frames of video images
from the image store and repetitively generate a full spatial resolution output image frame
and operable in a second mode to receive from the image store and store a plurality of
reduced spatial resolution image frames, the frame store being further operable in the
second mode to repetitively generate an output image frame having an image frame from
each of the plurality of reduced spatial resolution image frames selectively located at a
different position within the output image frame.

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Q1
Amended

Please rewrite Claim 2 as follows:

2. (Amended) An electronic still store system comprising:
an image store for retrievably storing therein a plurality of frames of video
images with both a full spatial resolution image frame copy and a reduced spatial
resolution image frame copy of each image frame being stored;
a frame store which is operable in a first mode to receive frames of video
images from the image store and repetitively generate a full spatial resolution
output image frame and operable in a second mode to receive from the image store
and store a plurality of reduced spatial resolution image frames, the frame store
being further operable in the second mode to repetitively generate an output image
frame having an image frame from each of the plurality of reduced spatial
resolution image frames selectively located at a different position within the output
image frame; and [The electronic still store system according to claim 1 above, further
comprising]
a size reducer coupled to receive from the frame store a full spatial resolution
image frame and in response thereto to return to the frame store a reduced spatial
resolution image frame and wherein the frame store is operable to receive and store the
reduced spacial resolution image frame while continuing to store the full spatial resolution
image frame.

Q2

Please rewrite Claim 4 as follows:

4. (Amended) The electronic still store system according to claim 1 above,
 further comprising a central processing unit coupled to select in response to control by an
 operator which image frame copies are retrieved from the [frame] image store and the
 location within the frame store at which each image frame copy is stored.

Please rewrite Claim 5 as follows:

5. (Amended) The electronic still store system according to claim 1 above,
 further comprising a central processing unit which is coupled to select in response to
 control by an operator to command the retrieval of a plurality of reduced spatial resolution
 image[s] frames from the image store and the placement of the retrieved image[s] frames
 as reduced size image[s] frames within an output image frame generated by the frame store.

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REMARKS

The first Office Action of December 21, 1984 has been carefully considered. Reconsideration of the application, as amended, is respectfully requested.

Claims 1 through 14 are pending in this application. Claims 1, 2, 4, and 5 have been amended by being rewritten.

In Claim 1, the word "retrievable" in the second line has been changed to "retrievably" to correct a grammatical error. This change does not affect the substantive content of the claim.

Claims 1 through 8 were rejected under 35 U.S.C. 112, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention.

The Examiner noted that the use of "frames" in Claim 1 is indefinite. Claim 1 has been amended so that it is now clear that "frames of video images" refer to either full resolution frames or reduced resolution frames but not the combination of the two. Both the full and the reduced spatial resolution copy are now referred to as image frame copy, pointing out that both copies are considered frames separate from the other. Support for this addition can be found in the specification at least on page 2, lines 30 to 33, continuing on page 3, lines 1 to 2.

The Examiner further noted that the use of "frame" in Claims 1, 2, 3, 6, and 7 is indefinite because it is not clear whether a frame includes both the full and the reduced image, or just one of the images. In addition to the additions discussed above, the word "frame" has also been added after the word image in Claim 1. Support for this addition can also be found at the above location in the specification. These additions make it clear that a frame can be either a full or reduced spatial image but not both. This change in Claim 1 clears any indefiniteness in dependent Claims 2, 3, 6 and 7.

Claim 1 was further held to be indefinite as to what was received by use of the term "receive" in line 7. After the word "receive", on line 7, the phrase "frames of video images" has been added, thus making it clear what is being received. Support for this addition can be found in the specification at least on page 7, lines 30 to 33.

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The Examiner correctly pointed out that in Claim 4, lines 4-5, the use of "frame store" is incorrect. The phrase "frame store" has been changed to "image store" and now reads correctly. Support for this correction can be found in the specification at least on page 8, lines 2 to 13.

The Examiner further noted that Claims 4 and 5 had similar problems to Claim 1 with regard to use of the term frame and image. Both claims have been amended to consistently use the term "image frame". As with amended Claim 1, this clears the indefiniteness. Support for these additions can be found in the specification at least on page 2, lines 30 to 33, continuing on page 3, lines 1 to 2.

Claim 2 has been rewritten in independent form by including all the limitations of amended Claim 1, on which it was dependent. As Claim 2 was not rejected on the basis of any prior art, it thus appears to be in condition for allowance. Claim 3 is dependent on amended Claim 2 and adds further details to amended Claim 2, and is also believed to be now in condition for allowance.

The Applicant's invention provides for an electronic still store system for storing, in an image store, both full and reduced spatial resolution images. The system has frame store where that operates in two modes. In the first mode, both a full spatial resolution image frame is received from the image store to generate an output image frame. In the second mode, a plurality of reduced spatial resolution image frames are received from the image store to generate an output image frame.

The Examiner rejected the original Claims 1, and 3 through 14 under 35 U.S.C. 103 as being unpatentable over the publication be Hugh Boyd, Quantel. Claim 3, is dependent on amended Claim 2 and, as discussed above, both are believed to be in allowable condition.

The Boyd publication discloses a system for the storage and retrieval of video image frames. A particular frame may be retrieved from the storage disk, reduced, made part of a composite frame and stored back to the disk, but the new frame stored back to the disk will be full size, although it may contain a reduced image. The Boyd publication does not teach the storing in an image store of both a full and reduced spatial resolution image frame. The Boyd publication only discloses the storing of full size images. The system disclosed in the Boyd publication does not teach retrieving a plurality of reduced spatial resolution image frames to form an output image frame without further reduction as taught be the Applicant. Hence, the Applicant respectfully submits that rewritten Claim 1 is structurally and functionally distinguishable over the Boyd publication.

USSN 483,327


5

Because dependent amended Claims 4 and 5 and Claims 6 through 14 add considerable further detail to the amended Claim 1 for the features discussed above, they are believed to be in condition for allowance for those self-evident additional reasons as well.

The Inuiya et al and Taylor et al references, which were cited but not applied, do not appear to be pertinent to the claims.

In the event that this amendment does not place this application fully in condition for immediate allowance for any reason, a telephone interview is respectfully requested at the number listed below.

Respectfully submitted,
Daniel A. Beaulier



by Bradley A. Perkins
Attorney for Applicant
Registration No. 31,406
(415) 367-2605

AMPEX CORPORATION
401 Broadway, MS. 3-35
Redwood City, CA 94063-3199
February 1, 1985



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Re-application of:

Daniel A. Beaulier

Serial No.: 483,327

Filed: April 8, 1983

For: Electronic Still Store With
High Speed Sorting and
Method of Operation

) Group Art Unit :262
) Examiner :D. Harvey
) Attorney Docket No.:AV-3033

RECEIVED

FEB 12 1985

GROUP 260

Hon. Commissioner of Patents and Trademarks
 Washington, D.C. 20231

Dear Sir:

Transmitted herewith is an amendment in the above-identified application.

() No additional fee is enclosed because this application was filed prior to October 25, 1965 (effective date of Public Law 89-93).

() No additional fee is required.

(xx) The fee has been calculated as shown below.

Claims as amended:

	Claims remaining after amendment	Highest number previously paid for	Present extra	Rate	Additional fee
Total Claims	14	14	0	x10	0
Independent Claims	7	6	1	x30	30.00
Total additional fee for this amendment					30.00

(xx) Charge \$ 30.00 to Deposit Account No. 01-1771. A duplicate copy of this sheet is enclosed.

(xx) The Commissioner is hereby authorized to charge any fees under 37 C.F.R. 1.16 and 1.17 which may be required by this paper, or credit any overpayment, to Deposit Account No. 01-1771. A duplicate copy of this sheet is enclosed.

Respectfully submitted,
 AMPEX CORPORATION

By Bradley A. Perkins
 Bradley A. Perkins
 Registration No. 31,406

Dated: February 1, 1985
 401 Broadway, M.S. 3-35
 Redwood City, California 94063
 (415) 367-2605

(REV. 4/17/84)

Serial No. 483,327

-2-

1. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 4-14 are rejected under 35 U.S.C. 103 as being unpatentable over the publication by Hugh Boyd, Quantel.

Claims 1 and 4-14 are rejected on the same basis as was stated in paragraph 3 of paper number 3.

The Boyd reference does teach the storage of both a full and a reduced spatial resolution image frames. The Boyd reference differs from the applicant's disclosure in that in Boyd the reduced spatial resolution image frame is stored in a "block" of memory capable of storing a full spatial resolution image frame. However, the claims cited above fail to point out this distinction.

2. Claims 2 and 3 are allowable over the prior art.

3. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in


Serial No. 483,327

-3-

37 CFR 1.136(a). The practice of automatically extending the shortened statutory period an additional month upon the filing of a timely response to a final rejection has been discontinued by the Office. See 1021 TMOG 35.

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 CFR 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

4. Any inquiry concerning the merits of this office action or earlier communications from the examiner should be directed to David E. Harvey whose telephone number is (703) 557-6844. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 557-3321.


JOHN C. MARTIN
SUPERVISORY PATENT EXAMINER
GROUP 260

DE Harvey:klw DA

2-28-85

(703) 557-6844

AX061604



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT

5-51
3-5-85

In re Application of:

DANIEL A. BEAULIER

Serial No. 483,327

Filed: April 8, 1983

Title: ELECTRONIC STILL STORE
WITH HIGH SPEED SORTING
AND METHOD OF OPERATION

Art Unit: 262

Examiner: D. Harvey

Attorney Docket No. AV-3033

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K
WLE

Honorable Commissioner
of Patents and Trademarks
Washington, DC 20231

RECEIVED

MAY 06 1985

GROUP 260

Sir:

AMENDMENT REPLY AFTER FINAL ACTION

This is in reply to the Office Action dated August 3, 1984 which was made final.
The following amendment is proposed.

IN THE CLAIMS:

Please rewrite amended Claim 1 as follows:

1. (Twice Amended) An electronic still store system comprising:
an image store for retrievably storing therein a plurality of frames of video images
with both a full spatial resolution image frame copy and a reduced spatial resolution image
frame copy of each image frame being stored, said reduced spatial resolution image
frame copy occupying less space within said image store than said full spatial
resolution image frame copy; and
a frame store which is operable in a first mode to receive frames of video images
from the image store and repetitively generate a full spatial resolution output image frame
and operable in a second mode to receive from the image store and store a plurality of
reduced spatial resolution image frames, the frame store being further operable in the
second mode to repetitively generate an output image frame having an image frame from

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each of the plurality of reduced spatial resolution image frames selectively located at a different position within the output image frame.

Please rewrite Claim 9 as follows:

9. (Amended) A video still store system comprising:

a size reducer coupled to receive full size image data representing a full size image and produce reduced size image data representing a corresponding reduced size image in response thereto;

an image store for storing full size image data representing a plurality of frames of full size images and reduced size image data representing a plurality of reduced size images, each corresponding to one of the full size images, said reduced size images occupying less space within said image store than said full size images; and

a frame store coupled to selectively receive from either an external source or the image store and store a frame of full size image data representing full size image, to repetitively retrieve and output a stored frame of the full size image data, to retrieve and communicate to the size reducer the stored frame of full size image data, to receive from the size reducer and store a frame of reduced size image data representing a reduced size image corresponding to the stored full size image, to selectively retrieve and output to the image store both the frame of full size image data and the frame of reduced size image data, and to receive from the image store and store a plurality of frames of reduced size image data with the reduced size image data for each different reduced size image being stored in a different location within the frame store such that when the frame store operates to repetitively retrieve and output a stored frame of full size image data for use by a device generating a television signal the reduced size images represented by the reduced size image data are disposed at different selected locations within an image represented by a repetitively retrieved and output frame of full size image data.

USSN 483,327

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Please rewrite Claim 10 as follows:

10. (Amended) An electronic still store system comprising:

a size reduce which receives normal size image data representing a normal size video image and converts the normal size image data to reduced size image data;

a frame store coupled to receive and store at first selected locations therein normal size image data representing a video image, the frame store being coupled to communicate full size image data to the size reducer, to receive back from the size reducer reduced size image data, to store the reduced size image data received from the size reducer in second selected locations in the frame store, and to repetitively output the full size image data, the frame store being further operable to receive and store in the first selected locations image data representing a plurality of reduced size images to form a single image comprised of the plurality of reduced size images; and

an image store coupled to receive from the frame store, store and retrieve, image data representing a plurality of normal size images and image data representing a reduced size image of each of the normal size images, said reduced size images occupying less space within said image store than said full size images.

Please rewrite Claim 11 as follows:

11. (Amended) A video still store system comprising:

a size reducer coupled to receive full resolution image data representing a frame of a full resolution image and produce reduced resolution image data representing a frame of a corresponding reduced resolution image in response thereto;

an image store for storing full resolution image data representing a plurality of frames of full resolution images and reduced resolution image data representing a plurality of reduced resolution images, each corresponding to one of the full resolution images; and

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a frame store operably coupled to selectively receive from either an external source or the image store and store a frame of full resolution image data representing a full resolution image, to repetitively retrieve and output a stored frame of the full resolution image data, to retrieve and communicate to the size reducer the stored frame of full resolution image data, to receive from the size reducer and store a frame of reduced resolution image data representing a reduced resolution image corresponding to the stored full resolution image, to selectively retrieve and output to the image store both the frame of full resolution image data and the frame of reduced resolution image data, and to receive from the image store and store a plurality of frames of reduced resolution image data with the reduced resolution image data, without cutting or further reducing said reduced resolution image data, for each different reduced resolution image being stored in a different location within the frame store such that when the frame store operates to repetitively retrieve and output a stored frame of full resolution image data, the reduced resolution images represented by the reduced resolution image data are disposed at different selected locations within an image represented by the repetitively retrieved and output frame of full resolution image data.

Please rewrite Claim 12 as follows:

12. (Amended) The method of operating a video still store system having an image store and a frame store coupled for bidirectional communication of video data with the image store comprising the steps of:

writing into the image store video data representing a plurality of full resolution images;

writing into the image store for each said full resolution image video data representing a reduced resolution copy thereof, said reduced resolution copy of each said full resolution image occupying less space within said image store than said full resolution image; and

transferring from the image store to the frame store for assembly in the frame store as a single composite image, data representing a reduced resolution copy of each of a selected plurality of images.

USSN 483,327

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Please rewrite Claim 14 as follows:

14. (Amended) The method of operating a video still store system having an image store and a frame store coupled to receive video data from the image store comprising the steps of:

writing into the image store video data representing a plurality of full resolution images;

writing into the image store for each said full resolution image video data representing a reduced resolution copy thereof, said reduced resolution copy of each said full resolution image occupying less space within said image store than said full resolution image;

transferring from the image store to the frame store video data representing a reduced resolution copy of each of a selected plurality of images; and

storing the transferred video data in the frame store in locations selected to produce a composite image having each of the images represented by the transferred video data positioned at a selected different position within the composite image.

REMARKS

The final Office Action of March 4, 1985 has been carefully considered. Reconsideration of the application, with the proposed amendment, is respectfully requested.

Claims 1 through 14 are pending in this application. Claims 2 and 3 have been allowed. Amended Claim 1 and Claims 9 through 12 and 14 have been amended by being rewritten.

The Applicant's invention provides for an electronic still store system for storing, in an image store, both full and reduced spatial resolution images. The system has frame store where that operates in two modes. In the first mode, both a full spatial resolution image frame is received from the image store to generate an output image frame. In the second mode, a plurality of reduced spatial resolution image frames are received from the image store to generate an output image frame.

AX061609

USSN 483,327

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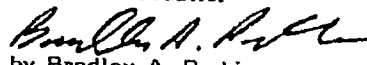
The Examiner rejected amended Claims 1, 4 and 5 and Claims 6 through 14 under 35 U.S.C. 103 as being unpatentable over the publication by Hugh Boyd, Quantel. The Examiner pointed out that while the Boyd reference differs from the Applicant's disclosure in that in Boyd the reduced spatial image is stored in a "block" of memory capable of storing a full spatial resolution image frame, the cited claims fail to make this distinction.

Amended Claim 1 and Claims 9, 10, 12 and 14 have been amended such that the reduced spatial resolution image frame copy occupies less space within said image store than the full spatial resolution image frame copy. Claim 11 has been amended such the frame store is operable to receive from the image store and store a plurality of frames of reduced resolution image data with the reduced resolution image data, without cutting or further reducing said reduced resolution image data. Hence, the Applicant respectfully submits that twice amended Claim 1 and amended Claims 9 through 12 and 14 are structurally and functionally distinguishable over the Boyd publication.

Because dependent amended Claims 4 and 5 and Claims 6 through 8 and 13 add considerable further detail to the amended independent claims, for the features discussed above, they are believed to be in condition for allowance for those self-evident additional reasons as well.

In the event that this amendment does not place this application fully in condition for immediate allowance for any reason, a telephone interview is respectfully requested at the number listed below.

Respectfully submitted,
Daniel A. Beaulier


by Bradley A. Perkins
Attorney for Applicant
Registration No. 31,406
(415) 367-2605

AMPEX CORPORATION
401 Broadway, MS. 3-35
Redwood City, CA 94063-3199
April 26, 1985

AX061610

B-214



THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:
DANIEL A. BEAULIER

) Group Art Unit : 262
) Examiner : D. Harvey
) Attorney Docket No.: AV-3033

Serial No.: 483,327

Filed: April 8, 1983

For: Electronic Still Store With
High Speed Sorting and
Method of Operation

RECEIVED

MAY 06 1985

GROUP 260

Hon. Commissioner of Patents and Trademarks
Washington, D.C. 20231

Dear Sir:

Transmitted herewith is an amendment in the above-identified application.

() No additional fee is enclosed because this application was filed prior to October 25, 1965 (effective date of Public Law 89-93).

(xx) No additional fee is required.

() The fee has been calculated as shown below.

Claims as amended:

	Claims remaining after amendment	Highest number previously paid for	Present extra	Rate	Additional fee
Total Claims	-			x10	
Independent Claims	-			x30	
Total additional fee for this amendment					

() Charge \$ _____ to Deposit Account No. 01-1771. A duplicate copy of this sheet is enclosed.

(xx) The Commissioner is hereby authorized to charge any fees under 37 C.F.R. 1.16 and 1.17 which may be required by this paper, or credit any overpayment, to Deposit Account No. 01-1771. A duplicate copy of this sheet is enclosed.

Respectfully submitted,
AMPEX CORPORATION

By Bradley A. Perkins
Bradley A. Perkins
Registration No. 31,406

Dated: April 26, 1985
401 Broadway, M.S. 3-35
Redwood City, California 94063
(415) 367-

(REV. 4/17/84)

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231, or 4-26-85

Bradley A. Perkins 4-26-85
Bradley A. Perkins, Reg. # 31,406 DATE


**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

 Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SERIAL NUMBER	FLING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
06/740,297	05/31/85	BEAULIER	AV-303511

 ANPEX CORP.
401 BROADWAY, MS 3-35
REDWOOD CITY, CA 94063-3199

EXAMINER	
HARVEY D	
ART UNIT	PAPER NUMBER
202	//
DATE MAILED: 07/03/85	

 This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

- ☒ This application has been examined ☐ Responsive to communication filed on _____ ☐ This action is made final.
- A shortened statutory period for response to this action is set to expire 3 (three) month(s), _____ days from the date of this letter.
- Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- | | |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input type="checkbox"/> Notice re Patent Drawing, PTO-845. |
| 3. <input type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449 | 4. <input type="checkbox"/> Notice of Informal Patent Application, Form PTO-152 |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474 | 6. <input type="checkbox"/> _____ |

Part II SUMMARY OF ACTION

1. ☒ Claims 1-14 are pending in the application.
Of the above, claims _____ are withdrawn from consideration.
2. ☐ Claims _____ have been cancelled.
3. ☐ Claims _____ are allowed.
4. ☒ Claims 1-14 are rejected.
5. ☐ Claims _____ are objected to.
6. ☐ Claims _____ are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings which are acceptable for examination purposes until such time as allowable subject matter is indicated.
8. ☐ Allowable subject matter having been indicated, formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____. These drawings are ☐ acceptable; ☐ not acceptable (see explanation).
10. ☐ The ☐ proposed drawing correction and/or the ☐ proposed additional or substitute sheet(s) of drawings, filed on _____, has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed _____, has been ☐ approved. ☐ disapproved (see explanation). However, the Patent and Trademark Office no longer makes drawing changes. It is now applicant's responsibility to ensure that the drawings are corrected. Corrections MUST be effected in accordance with the instructions set forth on the attached letter "INFORMATION ON HOW TO EFFECT DRAWING CHANGES", PTO-1474.
12. ☐ Acknowledgment is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 215.
14. ☐ Other _____

PTOL-326 (Rev. 7-82)

EXAMINER'S ACTION

AX061624

B-216

Serial No. 740,297
Art Unit 262

-2-

1. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

2. Claims 1 and 4-14 are rejected under 35 U.S.C. 103 as being unpatentable over the publication by Hugh Boyd, Quantel.

Claims 1 and 4-14 are rejected on the same basis as was stated in paragraph 3 of paper No. 3.

The Boyd reference differs from the applicant's disclosure in that the reduced resolution image frames are stored in a "block" of memory capable of storing a full resolution image frame. However, the reduced resolution image frame itself does occupy less space within the image store than does the full resolution image frame.

3. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

AX061625

B-217

Serial No. 740,297
Art Unit 262

-3-

In claim 1, lines 1-4 are indefinite. These lines fail to make a clear distinction among frames of video images, image frame copies, and image frames. Thus, it is not clear which the "frames" are actually stored. Clarification could be made by changing "therein" in line 2 to "therein image frame copies of", by changing "with both" in line 3 to "said image frame copies comprising", and by changing "image frames being stored" to "frame of video images."

In claim 1, line 7, the term "frames of video images" is indefinite when referred back to lines 1-4. The term also appears to be misdescriptive (see lines 30-32 on page 7 of the disclosure). Clarification could be made by changing the term to read "one of said full spatial resolution image frame copies."

In claim 1, line 10, the term "reduced spatial resolution image frames" is indefinite. Does the term refer to "said reduced spatial resolution image frame copies?" Similar clarification is needed in line 12 and in claims 2, 3 and 5.

In claim 1, line 11, "having an image frame from" is indefinite. To what does the term refer? Clarification could be made by changing the term to read "with."

In claim 2, lines 1-12 are indefinite for the reasons cited for claim 1. Clarification is needed.

In claim 2, lines 14 and 15, "a full spatial resolution image frame" is indefinite. Does the term

AX061626

Serial No. 740,297
Art Unit 262

-4-

refer to one of "said full spatial resolution image frame copies?" Similar clarification is needed in lines 17 and 18 and in claims 3.

In claim 3, line 5, "of an image" is indefinite. To what does the term refer?

In claim 4, lines 2 and 3, "in response to control by an operator" is indefinite. It is not clear what is being controlled. Similar clarification is needed in claim 5.

In claim 4, line 3, "image frame copies" should be preceded by "the" or "said". Similar clarification is needed in line 4.

In claim 5, line 5, "an output image frame" should be preceded by "the" or "said." Similar clarification is needed in claim 6.

In claim 6, line 7, "the image frames represented thereby" has no antecedent basis.

In claim 7, lines 3, and 4, "a sequence of video image frames" is indefinite. Does the term refer to "the plurality of frames of video images" recited in claim 1?" Similar clarification is needed in line 7.

In claim 8 the use of the term "operator commands" is indefinite. In line 3 it appears that the term refers to "a user console control means" while in line 5 the term appears to refer to signals generated by the user console.

In claim 8, line 6, "by the operator console" is indefinite. Does the term refer to signals "from the user console?"

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Serial No. 740,297
Art Unit 262

-5-

In claim 8, line 10, "coupling" is indefinite. It is not clear how a signal itself can be coupled. Does the term refer to "supplying?"

In claim 9, the use of the terms "image data" and "frames of image data" appears to be inconsistent and is confusing. Clarification is needed. Similar clarification is needed for the terms "image" and "frames of images." Also, "the" or "said" should precede a term when antecedence has been provided.

In claim 9, line 7, "each corresponding" is indefinite. To what does the term refer?

In claim 9, line 11, the term "repetitively retrieve" is indefinite. Does this term refer back to "selectively receive" of line 9? Clarification is needed throughout claim 9 and in claim 11.

In claim 9, lines 21 and 22, "represented by a repetitively retrieved and output frame of full size image data" is indefinite. To what does the statement refer?

In claim 10, line 5, "representing a video image" is indefinite when referred back to lines 2 and 3. Clarification could be made by deleting the term.

In claim 10, line 10, "image data" is indefinite. Does the term refer to "said reduced size image data?" Similar clarification is needed in lines 12 and 13.

In claim 10, line 10, "to form a single image" appears to be misdescriptive. The image appears to be

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Serial No. 740,297
Art Unit 262

-6-

produced when the data is displayed. The data itself represents the image. Similar clarification is needed in lines 12-15.

Claims 11-14 are also indefinite for reasons similar to those exemplified above.

4. The applicant is asked to review the claims and correct any problem similar to those exemplified above.

5. Yamamoto et al. has been cited because it shows a storage system which can store a variable amount of picture information.

6. Claims 2 and 3 would be allowable if amended to overcome the section 112 problems.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Harvey whose telephone number is (703) 557-6891.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 557-3321.

D. HARVEY:pdh DH

703-557-6891

08-20-85

James J. Groody
JAMES J. GROODY
PRIMARY EXAMINER
GROUP 262

AX061629

B-221

FORM PTO-892 (REV. 3-78)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		SERIAL NO. 740297	GROUP ART UNIT 262	ATTACHMENT TO PAPER NUMBER 11
NOTICE OF REFERENCES CITED				APPLICANT(S) Beaulier		

U.S. PATENT DOCUMENTS							
*	DOCUMENT NO.	DATE	NAME	CLASS	SUB-CLASS	FILING DATE IF APPROPRIATE	
X	A 41172264	10/79	Taylor et al.	358	185		
	B						
	C						
	D						
	E						
	F						
	G						
	H						
	I						
	J						
	K						

FOREIGN PATENT DOCUMENTS							
*	DOCUMENT NO.	DATE	COUNTRY	NAME	CLASS	SUB-CLASS	PERTINENT SHTS DWG SPEC
EPX	L 0051305	5/82	Europe	Yamamoto et al.	360	14.1	
	M						
	N						
	O						
	P						
	Q						

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)	
R	
S	
T	
U	

EXAMINER David E Harvey	DATE 8/15/85	
-----------------------------------	------------------------	--

*A copy of this reference is not being furnished with this office action.
(See Manual of Patent Examining Procedure, section 707.05 (a).)

AX061630

B-222



THE UNITED STATES PATENT AND TRADEMARK OFFICE

RECEIVED
FEB 10 1986
GROUP 1

In re Application of:

DANIEL A. BEAULIER

Serial No. 740,297

Filed: May 31, 1985

Title: ELECTRONIC STILL STORE
WITH HIGH SPEED SORTING
AND METHOD OF OPERATION

Art Unit: 262

Examiner: D. Harvey

Attorney Docket No. AV-3033 N1

Honorable Commissioner
of Patents and Trademarks
Washington, DC 20231

I hereby certify that this correspondence is being
deposited with the United States Postal Service as
first class mail in an envelope addressed to:
Commissioner of Patents and Trademarks, Washing-
ton, D.C. 20231, or 1-28-86

Brady A. Perkins 1-28-86
Brady A. Perkins, Reg. # 31,406 DATE

Sir:

AMENDMENT

In response to the first Office Action dated September 3, 1985, please amend the
above-identified application as follows:

IN THE CLAIMS:

Please cancel Claim 1.

Please amend Claim 2 as follows:

2. (Once Amended) An electronic still store system comprising:
an image store for retrievable storing therein a plurality of image frame copies of
frames of video images, the image frame copies comprising [with both] a full spatial
resolution image frame copy and a reduced spatial resolution image frame copy of each
frame of video images [image frame being stored];

a frame store which is operable in a first mode to receive and store one of said
full spatial resolution image frame copies [frames of video images] from the image store
and repetitively generate a full spatial resolution output image frame and operable in a
second mode to receive from the image store and store a plurality of said reduced spatial

USSN 740,297

2

resolution image frame copies [frames], the frame store being further operable in the second mode to repetitively generate [an] a reduced spatial resolution output image frame having an image frame comprising a [from each of the] plurality of said reduced spatial resolution image frame copies [frames] selectively located at [a] different [position] positions within the output image frame; and

a size reducer coupled to receive from the frame store a full spatial resolution image frame copy and in response thereto to return to the frame store a reduced spatial resolution image frame copy and wherein the frame store is operable to receive and store the reduced spacial resolution image frame copy while continuing to store the full spatial resolution image frame copy.

[Please amend Claim 3 as follows:]

3. (Once Amended) The electronic still store system according to claim 2 above, wherein the reduced spatial resolution image frame copies [frames] each have a spatial resolution of one-fourth the spatial resolution of the full spatial resolution image frame copies [frames] in each dimension [of an image].

[Please amend Claim 4 as follows:]

4. (Once Amended) The electronic still store system according to claim [1] 2 above, further comprising a central processing unit, controlled by an operator, coupled to select [in response to control by an operator] which of said image frame copies are retrieved from the image store and the location within the frame store at which each of said image frame copies [copy] is stored.

[Please amend Claim 5 as follows:]

5. (Once Amended) The electronic still store system according to claim [1] 2 above, further comprising a central processing unit, controlled by an operator, which is coupled [to select in response to control by an operator] to command the retrieval of a plurality of reduced spatial resolution image frame copies [frames] from the image store and to select the placement of the retrieved image frame copies [frames as reduced size image frames] within [an] said reduced spatial resolution output image frame generated by the frame store.

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USSN 740,297

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[Please amend Claim 6 as follows:]

6. (Once Amended) The electronic still store system according to claim 5 above, further comprising an output digital-to-analog convertor coupled to receive said output image frames from the the frame store and in response thereto to generate an analog video signal representing the received output image frames; and a monitor coupled to receive the analog video signal and display the output image frames represented thereby.

[Please amend Claim 7 as follows:]

7. (Once Amended) The electronic still store system according to claim 6 above, further comprising a video input generating an analog video signal representing a sequence of input video image frames and an analog-to-digital converter coupled between the video input and the frames store and converting the analog video signal to a digital form in which digital data representing [a] said input video image frame can be received and stored by the frame store.

[Please amend Claim 8 as follows:]

8. (Once Amended) The electronic still store system according to claim 7 above, further comprising a user console coupled to receive operator commands and output [received] operator command signals [commands] to a central processing unit, the central processing unit coupled to receive the operator command signals [commands] output by the operator console and in response thereto to generate control signals for controlling system devices including the input analog-to-digital converter, the image store, the frame store, the size reducer, and the output digital-to-analog converter, and a system bus [coupling] supplying the control signals to the controlled system devices.

E-1
Amend.

AX061634

B-225

USSN 740,297

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[Please amend Claim 9 as follows:]

9. (Once Amended) A video still store system comprising:

a size reducer coupled to receive, from a frame store capable of simultaneously storing both a full size and a reduced size image data sets, a full size image data set representing a full size image frame and produce and return to said frame store a reduced size image data set representing a corresponding reduced size image frame in response thereto;

an image store for storing a plurality of said full size image data sets representing a plurality [of frames] of full size images frames and for storing a plurality of reduced size image data sets representing a plurality of reduced size image frames [images], each of said reduced size image data sets corresponding to one of the full size image data sets [images, said reduced size images occupying less space within said image store than said full size images]; and

[a] said frame store coupled to selectively receive from either an external source or the image store and store one of said [a frame of] full size image data sets representing a full size image frame to selectively [repetitively] retrieve and output a stored [frame of the] full size image data set, to retrieve and communicate to the size reducer the stored [frame of] full size image data set, to receive from the size reducer and store said [a frame of] reduced size image data set representing a reduced size image frame corresponding to the stored full size image data set, to selectively retrieve and output to the image store both the [frame of] full size image data set and the [frame of] reduced size image data set, and to receive from the image store and store a plurality [of frames] of reduced size image data sets with the reduced size image data sets for each different reduced size image frames being stored in a different location within the frame store such that when the frame store operates to [repetitively retrieve and] output a stored frame of full size image data set for use by a device generating a television signal, the reduced size [images] image frames represented by the reduced size image data sets are disposed at different selected locations within an output image frame represented by a [repetitively retrieved and output frame of] full size image data set.

E1
Amended

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USSN 740,297

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Please amend Claim 10 as follows:

10. (Once Amended) An electronic still store system comprising:

a size reduce which receives normal size image data, from a frame store capable of simultaneously storing both full size and reduced size image data, representing a normal size video image and converts the normal size image data to reduced size image data representing a reduced size video data image and returns said reduced size image data to said frame store;

Amended

[a] said frame store coupled to receive and store at first selected locations therein normal size image data [representing a video image], the frame store being coupled to communicate full size image data to the size reducer, to receive back from the size reducer reduced size image data, to store the reduced size image data received from the size reducer in second selected locations in the frame store, and to repetitively output the full size image data, the frame store being further operable to receive and store in the first selected locations [image data representing] a plurality of reduced size image data images to form a single normal size video image comprised of the plurality of reduced size video images; and
an image store coupled to receive from the frame store, store and retrieve, said normal image data and said reduced size image data [image data representing a plurality of normal size images and image data representing a reduced size image of each of the normal size images, said reduced size images occupying less space within said image store than said full size images].

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[Please amend Claim 11 as follows:]

11. (Once Amended) A video still store system comprising:

a size reducer coupled to receive, from a frame store capable of simultaneously storing both a full size and a reduced size image data set, a full resolution image data set representing [a frame of] a full resolution image frame and produce and return to said frame store a reduced resolution image data set representing [a frame of] a corresponding reduced resolution image frame in response thereto;

an image store for storing a plurality of said full resolution image data sets representing a plurality [of frames] of full resolution image frames [images] and a plurality of reduced resolution image data sets representing a plurality of reduced resolution image frames [images], each reduced resolution data set corresponding to one of the full resolution image data sets [images]; and

[a] said frame store operably coupled to selectively receive from either an external source or the image store and store a [frame of] full resolution image data set representing a full resolution image frame, to repetitively retrieve and output a stored [frame of the] full resolution image data set, to retrieve and communicate to the size reducer the stored [frame of] full resolution image data set, to receive from the size reducer and store a [frame of] reduced resolution image data set representing a reduced resolution image frame corresponding to the stored full resolution image frame, to selectively retrieve and output to the image store both the [frame of] full resolution image data set and the [frame of] reduced resolution image data set, and to receive from the image store and store a plurality of [frames of] reduced resolution image data sets [with the reduced resolution image data], without cutting or further reducing said reduced resolution image data set, for each different reduced resolution image data set being stored in a different location within the frame store [which] such that when the frame store operates to repetitively retrieve and output a stored frame of full resolution image data set, the reduced resolution image frames [images] represented by the reduced resolution image data sets are disposed at different selected locations within an output image represented by the repetitively retrieved and outputted [output frame of] full resolution image data set.

11
Amended

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Please amend Claim 12 as follows:

12. (Once Amended) The method of operating a video still store system having an image store and a frame store coupled for bidirectional communication of video data with the image store comprising the steps of:

writing into the image store video data representing a plurality of full resolution image frames [images];

reducing said video data representing a plurality of full resolution image frames;

writing into the image store for each said full resolution image frame said video data representing a reduced resolution image frame copy thereof, in response to said writing into the image store video data representing a plurality of full resolution image frames [said reduced resolution copy of each said full resolution image occupying less space within said image store than said full resolution image]; and

transferring from the image store to the frame store for assembly in the frame store as a single composite image said video data representing a reduced resolution image frame copy of each of a selected plurality of reduced resolution image frame copies [images].

Please amend Claim 13 as follows:

13. (Once Amended) The method of operating a video still store system according to claim 12 above, wherein each reduced resolution image frame copy has a spatial resolution of one-fourth the spatial resolution of the corresponding full resolution image frame in each of two display dimensions.

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Please amend Claim 14 as follows:

14. (Once Amended) The method of operating a video still store system having an image store and a frame store coupled to receive video data from the image store comprising the steps of:

writing into the image store video data representing a plurality of full resolution image frames [images];

reducing said video data representing a plurality of full resolution image frames;

writing into the image store for each said full resolution image said frames video data representing a reduced resolution image frame copy thereof, in response to said writing into the image store video data representing a plurality of full resolution image frames [said reduced resolution copy of each said full resolution image occupying less space within said image store than said full resolution image];

transferring from the image store to the frame store video data representing a reduced resolution image frame copy of each of a selected plurality of reduced resolution image frames [images]; and

storing the transferred video data in the frame store in locations selected to produce a composite output image frame having each of the reduced resolution image frames [images] represented by the transferred video data positioned at a selected different position within the composite output image frame.

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Amended

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Please add Claim 15 as follows:

15. A video still store system comprising:

a size reducer coupled to receive a full size image data set representing a full size image frame and produce reduced size image data set representing a corresponding reduced size image frame in response thereto;

an image store for storing a plurality of said full size image data sets representing a plurality of full size image frames and for storing a plurality of reduced size image data sets representing a plurality of reduced size image frames, each of said reduced size image data sets corresponding to one of said full size image data sets; and

a frame store coupled to selectively receive from either an external source or said image store and store one of said full size image data sets, said frame store is operable such that when a full size image data set is received from an external source or is received from said image store and said image store does not contain a corresponding reduced size image data set, said frame store outputs a copy of said full size image data set to said size reducer and in response thereto receives a corresponding reduced size image data set which is outputted to said image store for storage with the corresponding full size image data set.

Cancelled

REMARKS

The first Office Action of September 3, 1985 has been carefully considered. Reconsideration of the application, as amended, is respectfully requested.

Claims 1 through 14 are pending in this application. Claims 1 through 14 have been amended and Claim 15 has been added.

Claims 1 through 14 were rejected under 35 U.S.C. 112, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention.

Claim 1 has been cancelled.

The Examiner notes a number of problems with Claim 2 in regards to the use of image frames. Applicant has made a number of changes to Claim 2 to correct the problems along the lines suggested by the Examiner. Other changes have been made to Claim 2 for the sake of internal consistency. Claim 2 has been amended to make clear that "a full spatial resolution image frame" refers to "image frame copy".

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Claim 3 has been amended to conform to the changes in Claim 2. Claim 3 has further been amended by removing "of an image" that is considered indefinite by the Examiner.

In Claim 4, the Examiner objects to "in response to control by an operator". Claim 4 has been amended to make clear that the central processing unit is "controlled by an operator". The Examiner notes that "image frame copies", in Claim 4, should be preceded by "said". This has been done.

Claim 5 has been amended to conform with amended Claim 1 as requested by the Examiner. The control by an operator has been corrected as was done in Claim 4. The "output image frame" now, also, has the proper antecedent basis.

Claim 6 has been amended to conform to Claim 5 as requested by the Examiner. The phrase "image frames" is now "output image frames", thus supplying the antecedent basis required.

The Examiner finds the phrase "sequence of video image frames" in Claim 7 indefinite. This has been amended to read "input video image frames" throughout the claim, thus making it clear that these are not the "plurality" referred to in Claim 2.

In Claim 8, the operator console now outputs "operator command signals", thus correcting any inconsistency. This change also answers the question about the phrase "by the operator console". As requested, the word "coupling" used in reference to the system bus has been changed to "supplying".

The Examiner has a number of objections to Claim 9. Applicant believes that amended Claim 9 answers all these objections. The use of "image data" and "frames of image data" has been clarified. "Each corresponding", "repetitively retrieve", and "represented by a repetitively..." have each been rewritten.

Claim 10 has been extensively rewritten to satisfy the objections of the Examiner. Applicant believes amended Claim 10 to now be definite.

Applicant has amended Claims 11-14 along the lines discussed above. Applicant has further reviewed all the pending claims and has amended all the claims in light of the Examiner's 35 USC 112 objections. The applicant believes all the pending claims are now definite and satisfy the requirements of 35 USC 112. As Claims 2 and 3 are not rejected on any prior art basis, they are believed to be condition for allowance.

The Applicant's invention provides for an electronic still store system for storing, in an image store, a plurality of full resolution image frames and in response thereto,